Santa Clara Valley Water District

5750 ALMADEN EXPRESSWAY
SAN JOSE, CA 95118-3686
TELEPHONE (408) 265-2600
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AN AFFIRMATIVE ACTION EMPLOYER

November 14, 1994

Palma Risler
Water Management Division
Bay-Delta Section
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Dear Palma:

Subject: Revised Santa Clara County Imported Water Supply and Economic Impacts of the proposed EPA Water Quality Standards in the San Francisco Bay/Sacramento-San Joaquin River Delta based on the September 20, 1994 DWR Operations Studies.

The U.S. Environmental Protection Agency (EPA) has requested comments on the imported Santa Clara County water supply and economic impacts of the proposed EPA water quality standards for the San Francisco Bay/Sacramento-San Joaquin River Delta. The attachments to this transmittal summarize the Santa Clara Valley Water District's water supply and economic impact analysis for Santa Clara County based on the revised DWR operations simulations for EPA's proposed standards completed September 20, 1994.

If you have any questions regarding the water supply impacts or economic impacts that have been identified, please contact Vince Stephens at (408) 265-2607, extension 2439 or John Ryan at extension 2402.

Sincerely,

Leo F. Cournoyer
Water Supply Manager

Enclosures

SANTA CLARA VALLEY WATER DISTRICT

ESTIMATED WATER SUPPLY AND ECONOMIC IMPACT DUE TO THE ENVIRONMENTAL PROTECTION AGENCY'S PROPOSED WATER QUALITY STANDARDS IN THE SAN FRANCISCO/SACRAMENTO—SAN JOAQUIN RIVER DELTA

NOVEMBER 1994

SUMMARY

The Santa Clara Valley Water District (SCVWD) has identified the near-term (1995) and long-term (2010) direct water supply and economic impacts to Santa Clara County (County) due to the Environmental Protection Agency's (EPA) proposed water quality standards and revised compliance schedule in the San Francisco Bay/Sacramento—San Joaquin River Delta (Delta). The water supply and economic impacts identified herein **represent an addendum** to the previous submittals dated March 8, 1994, and September 1, 1994, to the EPA's request for comments on its proposal to adopt federal water quality criteria for the Delta. This addendum reflects the water supply and economic impacts to the County based on the Department of Water Resources (DWR) model studies of EPA's proposed isohaline, winter run salmon and striped bass spawning standards using the variable export demand levels, 5.9—6.9 Million Acre Feet/yr (MAF/yr), on the projects. These latest DWR studies were completed on September 20, 1994.

The water supply reductions were initially identified based on the existing State Water Resource Control Board's D1485 standards and the National Marine Fisheries Service (NMFS) winter run salmon protection requirements. The EPA's proposed isohaline, winter-run salmon pulse flow requirements and striped bass spawning standards where then utilized to identify the incremental direct supply reduction and supplemental supply requirement on the near-term (1995) and long-term (2010).

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The supply impacts reflect the imported net delivery reductions to the SCVWD from the State Water Project (SWP), the federal Central Valley Project (CVP), and the County's imported water from the City and County of San Francisco Water Department's Hetch Hetchy system.

The total estimated near-term (1995) direct imported water supply reductions to the County range from 24,000 acre-feet per year (af/yr) over the historical period of study (1922-1992) to 36,000 af/yr during the state historical critical dry period (1928-1934). Table E in the attachment documents the supply impacts for the two periods identified.

Information is currently unavailable which would allow the SCVWD to identify the long-term (2010) direct water supply reductions associated with the EPA's proposed standards. However, an analysis was completed that utilized the near-term (1995) SWP, CVP, and Hetch Hetchy deliveries to the County to develop estimates for the County's supplemental supply requirements and the associated economic impacts for the long-term (2010). The assumption for the 2010 analysis was that Delta export demands would not increase as scheduled between 1995 and 2010. The caveat regarding this assumption is that SWP demands will be increasing over the next 15 years and actual deliveries would be less than what was utilized in the long-term analysis. The net effect is that the supplemental supply requirements identified in the analysis for the long-term (2010) will be understated.

Supplemental Supply Needs

Even with SCVWD's conjunctive use, groundwater and surface water supplies, conservation programs, and anticipated reclaimed water supplies, supplemental supplies will still be needed in the County on a near-term (1995) and long-term (2010) basis. Tables 1 and 2 identify the incremental supplemental supply requirements based on the EPA operation studies completed September 1994, which utilized a variable

export demand level of 5.9—6.9 MAF/yr on the projects. The supplemental supply requirements are based on the historical study period (1922-1992) and the historical critical dry period (1928-1934). The supplemental needs also accounts for the estimated delivery reductions on the Hetch Hetchy system to Santa Clara County due to the EPA standards and incorporates optimum use of local groundwater supplies.

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EPA Incremental Supplemental Supply Need (af/yr)

Delta Standards	LTA[1] (1922-1992)	CDP[2] (1928-1934) Maximum
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D1485/NMFS/EPA	8,000	32,000
Supplemental Need	6,000[a]	25,000[b]

note: direct imported impact average, a: 24,000 af/yr b: 36,000 af/yr

TABLE 2
Long-Term (2010) Santa Clara County
EPA Incremental Supplemental Supply Needs (af/yr)
(1995 Deliveries from SWP, CVP, and Hetch Hetchy)

Delta Standards	LTA[1] (1922-1992)	CDP[2] (1928-1934) Maximum
D1485/NMFS	23,000	78,000
D1485/NMFS/EPA	37,000	105,000
Supplemental Need	14,000[a]	27,000[b]

note: direct imported impact average, a: 24,000 af/yr b: 36,000 af/yr

Costs

The long-term average (1922-1992) residential economic costs associated with securing the County's near-term (1995) supplemental supply requirement due to EPA's proposed Delta standards range from $2,000,000/yr for the transfer scenario to $11,000,000/yr for the welfare loss scenario. The costs associated with the supplemental supply requirement during a critical dry period (1928-1934) would range from $9,000,000/yr for the transfer scenario to $45,000,000/yr for the welfare loss scenario. Over the 71 years of historical hydrology, welfare losses of this magnitude would be expected to occur 1-year-in-4 on average. Sequences of 3 or more consecutive dry years are likely. These later values represent 13 percent and 64 percent of the SCVWD's current annual Water Utility Enterprise budget of $70,000,000/yr.

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[1] LTA = Long–Term Average (1922–1992)

[2] CDP = Critical Dry Period (1928–1934)

The long-term average (1922-1992) residential economic costs associated with securing the County's long-term (2010) supplemental supply requirement due to EPA's proposed Delta standards range from $5,000,000/yr for the transfer scenario to $27,000,000/yr for the welfare loss scenario over the historical period of study (1922-1992). The costs associated with the supplemental supply requirement that would need to be secured during a critical dry period (1928-1934) would range from $10,000,000/yr for the transfer scenario to $52,000,000/yr for the welfare loss scenario. Over the 71 years of historical hydrology, welfare losses of this magnitude would be expected to occur 1-year-in-2 on average. Sequences of 3 or more consecutive dry years are likely.

The methodology for estimating welfare losses does not account for the cumulative impacts of consecutive dry years. If the County's water supply is perceived as unreliable, the economic impact would expand to the industrial and commercial sectors, and anticipated job growth would slow, and possibly be reduced, curbing the economic vitality of Silicon Valley.

Analysis Assumptions

This analysis utilizes the most recent estimated export delivery data available from the Department of Water Resources. The SCVWD assumptions used to identify the County's water supply and economic impacts are identical to the assumptions that were utilized and documented in the previous two submittals to EPA from SCVWD. Listed below and attached with this set of comments is a description of the data used for this analysis.

Table A contains SCVWD's estimates of the existing imported and local supplies for Santa Clara County. Table B identifies the County's estimated water needs before, during, and after the recent drought, as well as the County's estimated near-term (1995) and long-term water needs (2010). Table C contains the estimated SWP and federal CVP long-term average (1922-1992) deliveries under the existing NMFS winter run salmon protection requirements and the proposed EPA standards for the 1995 scenario. Table D identifies the estimated critical dry period (1928-1934) deliveries from the SWP and CVP to the County under the existing NMFS requirements and EPA's proposed standards. Table E contains the near-term (1995) incremental imported supply reductions for the County under the EPA standards relative to the existing NMFS requirements in the Delta. Table F contains the County's direct near-term (1995) incremental supply reductions on the SWP and CVP due to the proposed EPA standards, by water year type, as requested by the EPA in the Regulatory Impact Analysis Analytical Framework of July 1994.

Appendix 1 lists the estimated supplemental water supply requirements due to EPA's proposed standards over the historic study period of study for the near-term (1995) and long-term (2010).

TABLE A: Estimated Santa Clara County Water Supply
(Thousand Acre Feet/yr)

Hydrologic Basis	Local Surface	Local GW	SWP D1485+nmfs	CVP D1485+nmfs	Hetch Hetchy	TOTAL
LTA	91	112	89	100	72	464
CDP	54	74	64	73	67	332

LTA = Long Term Average, CDP = Critical Dry Period

TABLE B: Estimated Santa Clara County Water Needs
(Thousand Acre Feet/yr)

Year	Demand	BMP's	Reclaimed	Needs
1987	393	0	2	391
1990	320	0	2	318
1995	375	12	2	361
2010	488	42	17	429

TABLE C: Estimated SVWD SWP and CVP Deliveries
"Long Term" Average Under D1485/NMFS/EPA Standards
(Acre Feet/yr)

Demand Level	SCVWD Entitlement	NMFS Delivery	EPA+NMFS Delivery
1995	252,500	189,000	168,000

Project demands: 1995 = Variable (5.9-6.9 MAF/Yr)

TABLE D: Estimated SCVWD SWP and CVP Deliveries
"Critical Dry Period" Under D1485/NMFS/EPA Standards
(Acre Feet/yr)

Demand Level	SCVWD Entitlement	NMFS Delivery	EPA+NMFS Delivery
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Project demands: 1995 = Variable (5.9-6.9 MAF/Yr)

tables.vms

TABLE E: County Direct Imported Supply Reductions Due to EPA Proposed Standards relative to D1485 + NMFS (Acre Feet/yr)

1995		
	LTA	**CDP**
SWP+CVP	21000	28000
Hetch Hetchy	3,000	8,000
TOTAL	24,000	36,000

Project demands: 1995 = Variable (5.9-6.9 MAF/Yr)

TABLE F: 1995 SCVWD Water Year Type Average Incremental Supply Reductions Due to EPA standards relative to D1485 + NMFS (Acre Feet/yr)

WY TYPE	WET	ABOVE	BELOW	DRY	CRITICAL
SWP	0	4,900	4,400	4,700	9,800
CVP	8,900	21,800	19,500	18,600	19,300
TOTAL	8,900	26,700	23,900	23,300	29,100

Water Year Type Based on 4-River SRI, Variable Export Demand Level (5.9-6.9 MAF/Yr)

APPENDIX TABLE

INCREMENTAL WATER NEEDS IN SANTA CLARA COUNTY IN 1995 AND 2010 FROM EPA WATER QUALITY REGULATIONS

(1,000 Acre-feet)

Year	1995 Incremental Shortages		2010 Incremental Shortages	
	NMFS less D-1485	EPA less NMFS	NMFS less D-1485	EPA less NMFS
1922	0	0	0	0
1923	0	0	0	16
1924	7	25	38	27
1925	0	0	0	41
1926	0	0	48	15
1927	0	0	0	0
1928	0	0	0	16
1929	7	25	38	23
1930	7	21	71	16
1931	7	25	38	27
1932	7	18	75	26
1933	7	25	38	27
1934	7	25	38	27
1935	0	0	4	28
1936	0	0	0	0
1937	0	0	0	0
1938	0	0	0	0
1939	0	0	0	20
1940	0	0	0	3
1941	0	0	0	0
1942	0	0	0	0
1943	0	0	0	0
1944	0	0	0	15
1945	0	0	0	0
1946	0	0	0	1
1947	0	0	2	26
1948	0	32	28	61
1949	0	0	32	22
1950	7	25	37	28
1951	0	0	0	7
1952	0	0	0	0
1953	0	0	0	16
1954	0	0	0	12
1955	0	0	14	29

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(1,000 Acre-feet)

Year	1995 Incremental Shortages		2010 Incremental Shortages	
	NMFS less D-1485	EPA less NMFS	NMFS less D-1485	EPA less NMFS
1956	0	0	0	0
1957	0	0	0	11
1958	0	0	0	0
1959	0	0	0	18
1960	0	0	1	42
1961	7	25	78	27
1962	0	0	0	5
1963	0	0	0	6
1964	0	0	38	31
1965	0	0	0	0
1966	0	0	0	15
1967	0	0	0	0
1968	0	0	0	8
1969	0	0	0	0
1970	0	0	0	1
1971	0	0	0	15
1972	0	0	3	18
1973	0	0	0	0
1974	0	0	0	0
1975	0	0	0	0
1976	2	30	25	41
1977	7	25	38	27
1978	0	0	0	0
1979	0	0	13	13
1980	0	0	0	0
1981	0	0	0	12
1982	0	0	0	0
1983	0	0	0	0
1984	0	0	0	0
1985	0	0	0	18
1986	0	0	0	0
1987	0	0	0	49
1988	7	25	38	27
1989	7	25	38	27
1990	7	25	38	27
1991	7	25	38	26
1992	7	25	38	27
Totals	107	426	887	1,020

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07-Nov-94

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Water Year Type Based on 4-River SRI, Variable Export Demand Level (5.9-6.9 MAF/Yr)

APPENDIX TABLE

INCREMENTAL WATER NEEDS IN SANTA CLARA COUNTY IN 1995 AND 2010 FROM EPA WATER QUALITY REGULATIONS

(1,000 Acre-feet)

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1926	0	0	48	15
1927	0	0	0	0
1928	0	0	0	16
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1933	7	25	38	27
1934	7	25	38	27
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1938	0	0	0	0
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1940	0	0	0	3
1941	0	0	0	0
1942	0	0	0	0
1943	0	0	0	0
1944	0	0	0	15
1945	0	0	0	0
1946	0	0	0	1
1947	0	0	2	26
1948	0	32	28	61
1949	0	0	32	22
1950	7	25	37	28
1951	0	0	0	7
1952	0	0	0	0
1953	0	0	0	16
1954	0	0	0	12
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1959	0	0	0	18
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1961	7	25	78	27
1962	0	0	0	5
1963	0	0	0	6
1964	0	0	38	31
1965	0	0	0	0
1966	0	0	0	15
1967	0	0	0	0
1968	0	0	0	8
1969	0	0	0	0
1970	0	0	0	1
1971	0	0	0	15
1972	0	0	3	18
1973	0	0	0	0
1974	0	0	0	0
1975	0	0	0	0
1976	2	30	25	41
1977	7	25	38	27
1978	0	0	0	0
1979	0	0	13	13
1980	0	0	0	0
1981	0	0	0	12
1982	0	0	0	0
1983	0	0	0	0
1984	0	0	0	0
1985	0	0	0	18
1986	0	0	0	0
1987	0	0	0	49
1988	7	25	38	27
1989	7	25	38	27
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Totals	107	426	887	1,020

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07-Nov-94

Admin Rec

November 14, 1994

Memorandum

SUBJECT: Meeting with Joint Water Users Concerning EPA's Water Quality Standards and Club Fed Actions

FROM: Mary Ellen Levine

TO: Rulemaking Record

On November 14, 1994, a group of agricultural and urban water users, listed in Attachment A to this memorandum, met with Bob Perciasepe and Tudor Davies to discuss their alternative proposal to the EPA water quality standards and Club Fed actions.

Greg Gartrell stated that this group has been working on this proposal since September of 1994. This proposal was discussed at a Club Fed meeting held October 18th with Club Fed members and Greg Gartrell just submitted a report of the meeting to Betsy Rieke, a copy of which he provided to Bob Perciasepe.

The summary of the proposal is provided in the attached booklet. While there are many general points of agreement between the Club Fed approach and the Joint Water Users, the main differences are:

(1) The extent to which export restrictions are appropriate in the San Joaquin during the spring. The Joint Water users believe that non-flow measures such as the barrier to the Old River are the biologically important factors to protecting the Bay/Delta, rather than flow or export restrictions. The agricultural users cannot cover the amount of water that would be lost to comply with EPA's requirements.

(2) Regarding the Q-West restrictions necessary to protect the winter run salmon, the Joint Water Users believe that the only significant factor affecting survival is keeping the salmon in the mainstem of the river; thus, the Q-West equation is irrelevant.

(3) Regarding the Sacramento fish migration criteria, there is a slight difference in the number of days of gate closures at the delta cross-channel.

(4) The Striped Bass Spawning Standards are problematic in that the Joint Urban Water Users disagree about using flows to dilute agricultural runoff of salt. Further, the striped bass are predators, and should not be protected until other species are protected.

(5) There are differences in the 2 ppt salinity standards, which the Joint Water Users are working through with FWS in

Sacramento. While the Joint Water Users agree that it is important to protect the delta smelt during their spawning period, one only needs to protect them when they are spawning. The Club Fed requirement of 150 days of 2 ppt salinity at the confluence goes too far.

Further, the Joint Water Users have proposed an extensive monitoring program to verify these standards. The Joint Water Users want to improve the database for the next triennial review.

Tim Quinn emphasized that the Joint Urban Water Users want to focus on the entire ecosystem and that they hope EPA will base its final decision on a technically-solid package. He emphasized further that the bulk of San Joaquin water agricultural users agree with this proposal. Finally, the Joint Water Users stated that they would like to operate under their proposed package in 1995. If the State Board proposed these standards, they would voluntarily comply with them.

Attachment A

Bay/Delta

Nov 14, 1994

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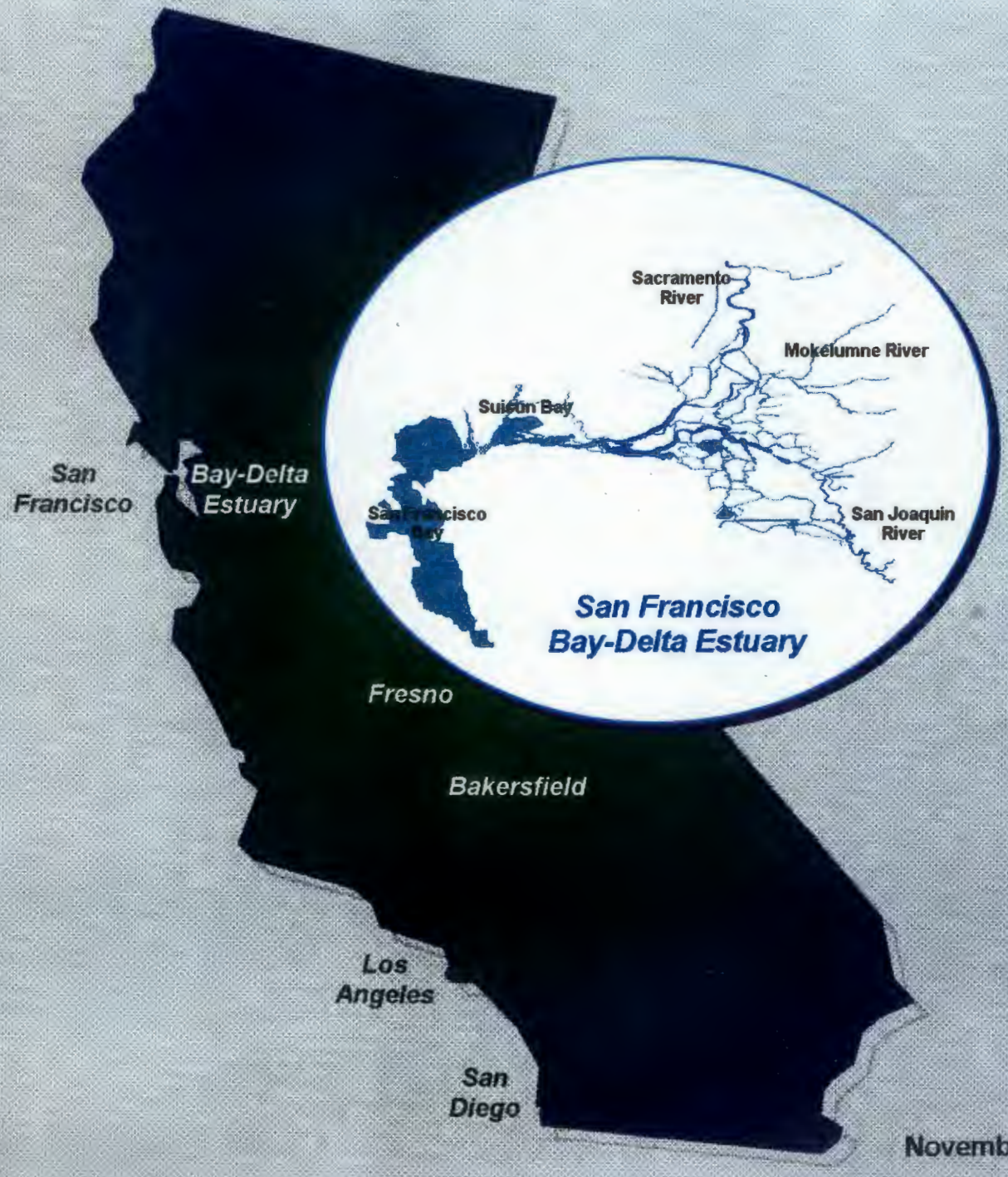
Dave Schuster	Kern County Water Agency & Tulare Lake W.S. District	(916) 446-7207
Joe Raedeke	The Ferguson Company	(202) 331-8500
Tudor Davies	EPA/OST	(202) 260-5400
Diane Regas	EPA/OW	
Chuck Fox	EPA/OW	

Admin Rec

Joint Proposal for Resolving San Francisco Bay-Delta Issues

A Briefing Book by Major Agricultural and Urban Water Agencies



November 1994

Executive Summary

- California's economy urgently needs resolution of environmental problems in the Bay-Delta to restore the reliability of urban and agricultural water supplies.

- This Joint Proposal, developed by major urban and agricultural water users in California (Joint Water Users), utilizes the best available scientific information and analysis from recognized experts in biology, hydrology, and other applicable fields. The Joint Water Users believe the recommendations contained in this Proposal meet the biological objectives set out by State and Federal resource agencies with less water supply and economic impacts. However, this process is still open to technical discussion with agencies and stakeholder groups.

- The Joint Proposal provides a coordinated, comprehensive protection plan based on habitat protection for multiple species rather than management of the ecosystem on a species-by-species basis. Species-by-species management is inherently inefficient, requiring high water costs without comparable increases in biological benefit. The elements of the Joint Proposal include:

  - ✓ Estuarine shallow-water habitat outflow/salinity standard for the Suisun Bay region;

  - ✓ Flow and water project operational requirements such as export limits;

  - ✓ Measures to control non-outflow related factors adversely affecting aquatic habitat;

  - ✓ Implementation measures to maximize environmental benefit while minimizing economic impacts of new regulations; and

  - ✓ Comprehensive evaluation and monitoring program to assess effectiveness of regulatory measures and permit updating of standards to reflect scientific findings.

- The Joint Water Users request the federal resource agencies (Club FED) to take the following actions:

  - ✓ Cooperate with State agencies and stakeholder groups in developing a State-adopted comprehensive, habitat-based program for the Bay/Delta consistent with the Joint Proposal;

  - ✓ Approve a State-adopted program implemented under California water law and withdraw U.S. Environmental Protection Agency's standards;

  - ✓ Provide adequate "shelf-life" by assuring that future Endangered Species Act actions, including regulatory 'take' provisions, will not require greater water supply impacts; and

  - ✓ Credit Central Valley Project water supplies used to meet new Bay-Delta standards toward environmental dedications required under the Federal CVP Improvement Act.

Table of Contents

Briefing Overview

I. Emerging Consensus Among Agricultural and Urban Water Suppliers for New Environmental Standards in the Bay-Delta

There is little doubt that many of the environmental resources of the Bay-Delta estuary have declined in recent decades. Operation of water supply projects throughout the Bay-Delta watershed in combination with a variety of other factors have contributed to this decline. Major agricultural and urban water suppliers in California that rely on supplies from the Bay-Delta watershed strongly support development and implementation of regulatory standards to help resolve the estuary's environmental problems.

Due to the importance of the Bay-Delta to water suppliers in all sectors of California's economy, agricultural and urban agencies are working together to develop a consensus position on standards and long-term environmental restoration measures.

Although all details are not yet finalized, consensus is growing among urban and agricultural agencies on the most appropriate approach for new standards. This briefing book contains the latest information regarding this emerging consensus.

II. Environmental Protection of the Bay-Delta is Crucial for the Long-Term Health of California's Economy

From a water resources perspective, California's economy and environment "meet" in the Bay-Delta estuary. The vast majority of the State's economy relies on the Bay-Delta or its tributaries as a major source of water supplies. At the same time, the Bay-Delta estuary provides some of the most important estuarine habitat on the West Coast.

We believe environmental and economic demands on the Bay-Delta can coexist with the natural resource base. Indeed, achieving a stable and reliable water supply requires resolution of the environmental problems in the Bay-Delta.

Water is perhaps the most critical input in one of California's most important economic sectors, agriculture. California agriculture generates nearly $18 billion in revenue annually and supports one out of every ten jobs in the State. California agriculture is so productive that it produces 50% of the Nation's fruits and vegetables on only 3% of the Nation's land.

The economic impact of previous water supply reductions on agriculture has been high. Farmers are finding it increasingly difficult to assure adequate water supplies to support their crops, and this uncertainty has caused some banks to withhold credit needed to buy seeds, fertilizers, and other inputs at the beginning of the growing season. These problems have contributed to falling land values in parts of the Central Valley.

In the urban economy, a compelling illustration of the economic stakes involved in solving the Bay-Delta water policy crisis appeared on March 21, 1994, when Standard & Poor's CreditWeek Municipal advised bond investors:

> *"[T]he allocation of water supplies for consumption in California remains in gridlock as both federal and state legislators try to achieve a workable solution to the conflicting interests in the Delta ... [The] problems faced by California water suppliers will have a generally negative impact on credit quality for years to come due to the economic impact and rising costs associated with water supply and reliability."*

A down-grading of credit for public agencies in California would have a rippling effect throughout the economy, affecting utility rates and a myriad of other public and private services.

The economic issues at stake in the Bay-Delta prompted eleven of California's most prominent business leaders to ask President Clinton and Governor Wilson to seek resolution of Bay-Delta issues. Their letter, reported in newspapers statewide, stated in part:

"The continuing gridlock in setting standards for the Bay-Delta is simply unacceptable. The lack of approved standards is creating uncertainty that threatens the economic recovery we so desperately need. Please commit to achieving standards for the Bay-Delta this year."

III. Agricultural and Urban Water Agencies Have Developed a Comprehensive Program for the Bay-Delta that Lessens Water Costs

Although all details have yet to be resolved, agricultural and urban agencies have been moving toward a consensus position on new Bay-Delta standards.

During the past several months, agricultural and urban representatives have been exchanging views on the best approach for the Bay-Delta. These interests agree that current endangered species regulations are not effectively accommodating the competing demands for beneficial uses of Bay-Delta waters.

To remedy this situation, agricultural and urban agencies have been formulating an alternative program that builds upon EPA's proposal and addresses overall habitat quality in the Bay-Delta instead of current narrow requirements for a few particular species, and to do so at a lesser water cost.

As we understand it, one of the early commitments of the Federal Ecosystem Directorate (Club FED) was to improve the Bay-Delta's ecosystem in a manner that minimizes water costs and associated economic impacts. This Joint Plan is consistent with this mandate from Club FED.

IV. Comprehensive Ecosystem Management Must Replace the Species-by-Species Approach of Current ESA Implementation

It has become clear to water users throughout California that endangered species actions that focus on the needs of particular species produce inadequate environmental protections while creating undue water supply uncertainty.

By contrast, this Joint Proposal is comprehensive in nature and focuses on overall habitat quality for all aquatic organisms. A comprehensive, multi-species ecosystem management plan is necessary to address the multitude of factors contributing to Bay-Delta fisheries decline and to provide an alternative to counterproductive and uncoordinated species-by-species measures under current endangered species regulations. Such a plan must also address the environmental tradeoffs posed by different management strategies, such as impacts on Mokelumne River salmon production goals from the proposed Delta operational changes.

This Joint Proposal will increase water supply reliability (relative to a species-by-species approach) while maintaining a high degrees of environmental protection. It should be noted, however, that success of this comprehensive program will be in jeopardy if present or future ESA implementation measures induce water supply constraints beyond those this program will produce. In other words, agreements by Federal and State resources agencies regarding this program must have sufficient "shelf-life" to assure the increased water supply reliability that California's economy requires.

Joint Proposal on Bay-Delta Standards

I. Background

In January 1994, the U.S. Environmental Protection Agency (EPA) proposed new Bay-Delta standards that included measures for three areas:

A. Estuarine shallow-water habitat in Suisun Bay;

B. Striped Bass spawning in the San Joaquin River; and

C. Salmon smolt out-migration through the Delta

EPA elicited comments on their proposal and are scheduled to finalize it in December 1994.

II. Recommended Refinements to EPA's Proposed Standards

As an initial step toward ending the gridlock and setting Bay-Delta standards, agricultural and urban agencies studied EPA's proposed standards and recommended refinements that would provide as effective or more effective environmental protection at a lower water supply and economic cost.

This initial step included an intensive four-month analysis by independent scientists and technical representatives concurrent with meetings between representatives of agricultural, urban, environmental, and State/Federal agencies.

III. Joint Water Users' Comprehensive Proposal (Category I - IV)

Following efforts to recommend refinements to EPA's proposed water quality standards, major urban and agricultural agencies throughout the State intensified their efforts to develop a consensus position on a comprehensive package. This package not only addresses Spring outflow issues (which was the focus of EPA's proposal; referenced here as "Category I"), but also included other essential elements necessary for developing a coordinated estuarine habitat protection plan. These elements were grouped into the following categories:

Category I: Estuarine shallow-water habitat outflow/salinity standard for the Suisun Bay region (Spring period only);

Category II: Flow and operational requirements for the Bay-Delta estuary (Spring, Summer, Fall, & Winter);

Category III: Non-outflow related biodegradation factors and habitat and measures to improve fish transport; and

Category IV: Implementation measures including: balancing responsibility among watershed users, developing a mitigation credits program, identifying possibilities for an Environmental Restoration Fund, and fully crediting Federal agricultural water costs toward Central Valley Project Improvement Act obligations.

A. Category I: Estuarine Habitat Standard

The estuarine habitat standard focuses on aquatic fish and wildlife habitat in the Bay-Delta Estuary caused by the interaction of tidal saltwater from the Pacific Ocean and freshwater flows from the Bay-Delta's watershed.

The proposed standard requires maintaining the quality of Bay-Delta waters as necessary to protect estuarine habitat, fish migration, cold freshwater habitat, and other existing beneficial uses.

Freshwater outflow, measured directly or indirectly through a salinity standard, is an important mechanism in establishing the necessary habitat conditions.

The Joint Proposal's estuarine habitat standard incorporates a modified version of the "X2" salinity standard proposed by EPA. "X2" stands for two parts per thousand salinity for a certain number of days at designated measuring locations. It can relate directly to freshwater outflow and thus serves as a convenient indicator of outflow.

The salient features of the X2 criteria include:

1) *Sliding Scale*

The X2 standard must reflect the inherent hydrologic variability of the estuary. The proposed "sliding scale" adjusts the standard on a monthly basis in response to recent hydrologic conditions. The sliding scale would also update the standard monthly to ensure proper reflection of natural hydrologic variation.

2) *Measuring Stations*

EPA's proposal would measure X2 compliance at three points in the estuary, listed from farthest upstream to farthest downstream:

a) The Confluence of the Sacramento and San Joaquin rivers at Collinsville;

b) Chipps Island; and

c) Roe Island.

Some interests had originally expressed concerns that EPA's proposed Roe Island standard would provide uncertain biological benefits at a high water cost. The current Joint Proposal now supports Roe Island as a measuring station, with the proviso that the Roe standard only be effective when X2 exists at the Roe Island measuring station at least 14 days the previous month.

This "trigger" is necessary to more closely replicate natural hydrologic variability. In very dry years, X2 salinity levels would, in a natural state, occur farther upstream from Roe Island. Enforcing the Roe standard under such conditions would create unnatural habitat conditions and impose higher water costs.

Because the biological benefits of a Roe standard are still somewhat uncertain, a monitoring and evaluation program should analyze the effect of the Roe standard on habitat quality. The standard should then be revised accordingly.

3) *Alternative Methods for Compliance*

At some times, unusual weather and tidal patterns could prevent the attainment of a salinity standards despite the best efforts of water project operators. Therefore, the Joint Water Users' proposal permits compliance by meeting at least one of three alternative criteria:

a) Average daily salinity (X2) at the compliance point; or

b) 14-day running average salinity at the compliance point; or

c) Maintenance of Delta outflow calculated to maintain desired salinity at steady-state.

B. Category II: Flow & Operational Controls

Water inflow/outflow and other management requirements comprise the second element of the Joint Water Users' proposed program. Some of these measures may be part of the consultation process for early implementation of standards, while other measures may require water rights review before the State Board. The operational measures the Joint Water Users suggest include:

1) *Delta Cross Channel gate closures:* Selective closure of the Delta Cross Channel is one of the highest priority actions needed to protect certain migratory fish.

2) *Fish Barriers at Old River and other locations:* Installation of acoustical and/or physical barriers at the head of Old River and other locations in the Bay-Delta will help reduce delays in emigration and entrainment losses of juvenile chinook salmon.

3) *Flow Requirements:* Besides monitoring the location of X2 salinity, it will be necessary to provide specific levels of freshwater flow in the Sacramento and San Joaquin Rivers in order to improve general aquatic habitat conditions. Flows provide a "homing cue" for migrating fish and also transport fish eggs, larvae, and young downstream.

4) *Export Restrictions (Ratio Limits / Direct Restrictions):* Delta exports have direct and indirect impacts on estuarine habitats. Direct fishery losses at pumping facilities, along with detrimental effects of alterations in Delta flow patterns caused by exports, need to be addressed by various measures.

To alleviate the impact from export restrictions, the Joint Proposal incorporates a formula that limits pumping as a ratio of export-to-inflow. This ratio formula allows the State and Federal water projects to export excess flows during high runoff periods when desirable habitat conditions have been established, while at the same time reducing the impacts of the pumps.

Export limits are not intended to impede water transfers, which should be considered on a case-by-case basis.

Rigid fixed export restrictions, on the other hand, place a fixed ceiling on pumping regardless of whether desirable habitat conditions exist or the system has excess flows. This type of export restriction provides no additional biological benefit and severely limits operational flexibility and any incentives for developing innovative wet-year banking programs

C. Category III: Non-Outflow-Related Factors

In order to address the range of factors with significant effect on the Bay-Delta's ecological health, the Joint Water Users' coordinated program includes measures to control and improve the following non-outflow related factors:

1) Unscreened water diversions along the Sacramento and San Joaquin rivers, and other locations;

2) Waste discharge control and pollution prevention;

3) Legal fishing (sport and commercial);

4) Illegal fishing (poaching);

5) Land-derived salts;

6) Exotic species;

7) Riparian, wetland, and estuarine habitat restoration; and

8) Delta channel alterations/local land-use modifications.

Any program that fails to address these factors will not enhance the habitat conditions of the Bay-Delta to a sufficient degree to promote necessary levels of environmental restoration.

In addition, a program of demonstration projects and technical feasibility analyses will have to occur to help implement solutions to non-outflow factors.

D. Category IV: Implementation Measures

After adopting a new protection plan for the Bay-Delta, the State Board will begin water rights proceedings for implementing the new standards and other proposed measures. In order to lessen negative economic impacts associated with new regulations, some agencies have supported the following implementation measures. Some of these measures continue to be points of discussion among agricultural and urban agencies.

1) Balancing responsibility among watershed users

Traditionally, the two major exporters from the Delta (the State Water Project and the Federal Central Valley Project) have borne the entire responsibility for meeting Bay-Delta water quality standards and outflow requirements. The Racanelli court decision and evolving needs of California's water users indicate the State Board will need to consider all Bay-Delta watershed users when allocating responsibility for meeting new Bay-Delta standards.

To the extent any watershed user, either exporter or diverter, has dedicated water to environmental protection or enhancement that results in increased Delta outflow, that water should be considered by the State Board when it allocates responsibility for new standards.

The Joint Water Users believe implementation should proceed through the State Board's water rights phase, consistent with California water law.

2) Mitigation Credits

The proposed mitigation credits program would allow a water user to meet some or all of its environmental obligations by substituting another resource deemed equivalent to its required actions. Some obvious alternatives include money paid to a fund to be used for the purchase of water and the direct purchase of in-lieu water from a willing seller.

Other alternatives may be dependent on a long-term ecosystem management plan, and could include authorizations to divert water in exchange for the purchase of an equivalent forbearance by another user or the creation of an environmentally beneficial project that is deemed to be an acceptable substitute for the obligation.

A State agency such as the State Board or an entity formed specifically for this purpose would administer the program. To the extent possible, the State Board should establish the parameters of a mitigation credits system in the implementation phase of Bay-Delta hearings.

3) Environmental Restoration Fund

Water for environmental purposes can be provided through means other than using traditional regulatory mechanisms. This environmental water can be purchased through an environmental restoration fund. Financing for the Fund could come from a fee on water users, State General Fund moneys, or a general obligation bond issuance. A State or non-governmental entity would manage the Fund.

Besides going toward water purchases, the Fund could help provide State matching funds for implementation of the Central Valley Project Improvement Act or could finance additional environmental improvement projects such as rehabilitation or construction of fish screens, replenishment of spawning gravel, installation of temperature control devices, and other mitigation and evaluation projects identified by fishery agencies and other fishery experts.

4) CVPIA Coordination

The Central Valley Project Improvement Act (CVPIA -- P.L. 102-575) dedicated 800,000 acre-feet of CVP annual yield to fisheries restoration in the Central Valley and to meeting Bay-Delta water quality standards and Endangered Species Act (ESA) requirements.

The Joint Proposal assumes that all of the CVP water required for implementing the new standards and ESA measures will be credited toward fulfillment of the 800,000 acre-feet obligation.

Failure to fully account for the water costs to CVP users in this way would be inconsistent with the comprehensive nature of the Bay-Delta program and would jeopardize its implementation.

E. Comprehensive Monitoring Plan and Regulatory Updating

The Joint Proposal includes a comprehensive evaluation and monitoring plan to assess the effectiveness of measures implemented under Categories I, II, and III. Several management measures will require real-time monitoring and exploration of cause and effect relationships between relevant biological variables. In addition, the standards should be updated periodically to reflect the monitoring and evaluation program's findings.

Although State and Federal resource agencies have administered ecological monitoring programs currently and in the past, the Joint Water Users have concluded that these programs are inadequate to effectively evaluate biological impacts of new standards. Moreover, current monitoring programs focus excessively on flow-related factors.

Biological Benefits of the Joint Proposal

FIGURE 1

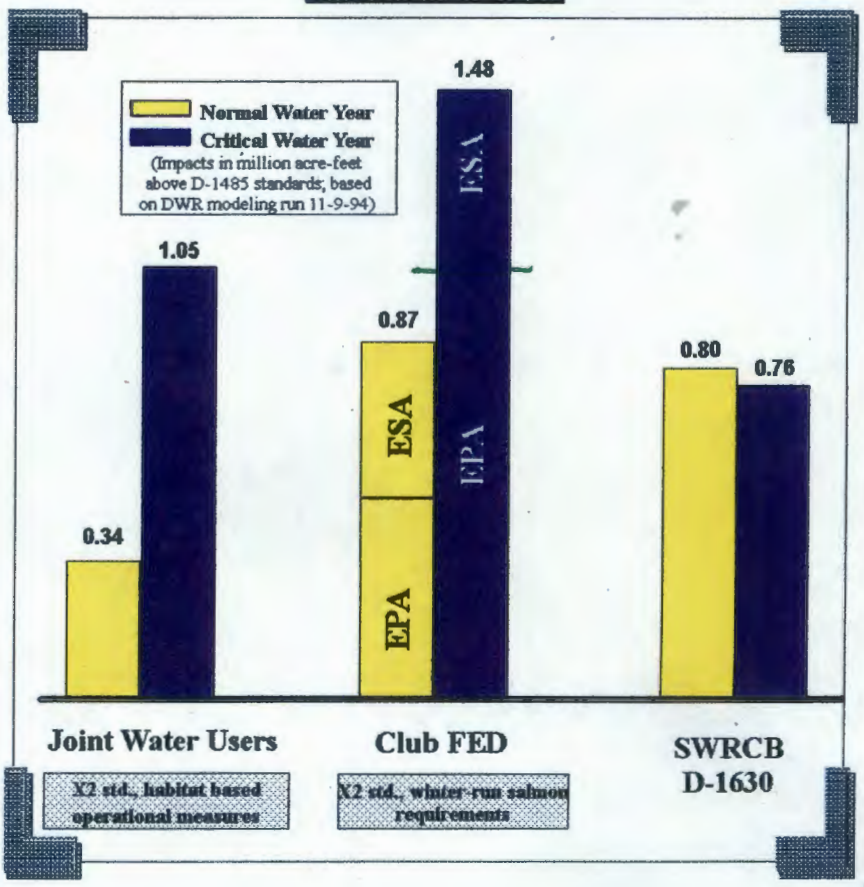
	Club FED Proposal	Joint Proposal
Increased instream flows	✓	✓
Improved estuarine habitat	✓	✓
Reduced fish entrainment	✓	✓
Fish transport flows	✓	✓
Monitoring and response program	✓	✓
Physical habitat restoration		✓
Programs for unscreened diversions		✓
Programs for pollution prevention		✓
Programs for other non-outflow related factors		✓

The Joint Proposal provides environmental benefits through a coordinated and comprehensive plan that is based upon habitat protection for multiple species rather than management of the ecosystem on a species-by-species basis. The elements of this comprehensive proposal described in Figure 1 have been developed by recognized experts in biology, hydrology, and other applicable fields, and in our view represent the required elements for protection when applying the best available science.

The elements of the Joint Proposal not only provide a comprehensive package to protect and restore the Estuary, but do so at a lower water cost than the Club FED proposal.

The Joint Proposal also allows water users to mitigate water supply losses by allowing reasonable cross-Delta water marketing opportunities.

FIGURE 2



Status & Discussion of Current Technical Issues

Representatives of the Joint Water Users have met numerous times with Federal and State resource agency representatives to discuss technical issues regarding the Joint Proposal.

This process pointed out the many common areas of agreement that existed, as well as unresolved issues. The Joint Water Users have prepared a document summarizing these discussions, which is available upon request.

The chart below summarizes points on which the parties have reached consensus and other issues under discussion. It is generally acknowledged that the two most significant points of technical disagreement relate to export limits and San Joaquin River flows.

The Joint Water Users believe these discussions have indicated that points of agreement between the Joint Proposal and the Club FED proposal far outweigh points of disagreement.

Issue	Status	Urban/Agric. Position	Club FED Position
Roe Island Compliance Location	Resolved	Utilizes Roe Island as measuring station, along with Sacramento/San Joaquin Confluence and Chipps Island.	Same with slightly different mechanism for determining number of days of compliance at Roe Island.
"Sliding Scale" Compliance Mechanism	Resolved	Includes "sliding scale" to reflect Bay-Delta's inherent hydrologic variability.	Same
3-Way/Alternative Compliance	Resolved	Permits compliance through achievement of desired average daily salinity, 14-day average, or comparable freshwater outflow.	Same
Include All Responsible Parties	Resolved	Includes consideration of all Bay-Delta watershed users under California Water law when implementing new standards.	Same
San Joaquin River Flows in Spring	*Unresolved*	Supports increased freshwater flows, export limits, and installation of fish guidance barrier to protect outmigrating salmon smolts during Spring period.	Advocates higher levels of freshwater flows and stricter export limits to protect outmigrating salmon smolts during Spring period.
State & Federal Export/Inflow Ratio Limits	*Unresolved*	Supports export/inflow ratio limits as an appropriate way of reducing impacts at the export pumps, and efficiently managing a finite water supply for California.	Disagrees that export/inflow ratio is appropriate way to minimize fish mortality at export pumps. Prefers fixed export limits and a "reverse flow" (QWEST) index requirement. Concerned that Joint Proposal's export/inflow ratios are too high in some months.
Cross-Channel Gate Closure Periods	*Unresolved*	Supports closure of Delta Cross-Channel until the end of May to accommodate summer recreational use. Closing Cross-Channel keeps migrating salmon in main stem of Sac. River and prevents diversion of fish into interior Delta, where they are more susceptible to predation.	Advocates closing Cross-Channel through June to protect late outmigrating salmon.
Striped Bass Spawning Standards	*Unresolved*	Rejects setting specific species-by-species standards, especially for striped bass, which prey on endangered species. Joint Proposal incorporates striped bass needs through a habitat-based ecosystem approach.	Advocates specific measures to protect and enhance striped bass population.

Status & Discussion of Current Technical Issues (con't)

I. Export Limits

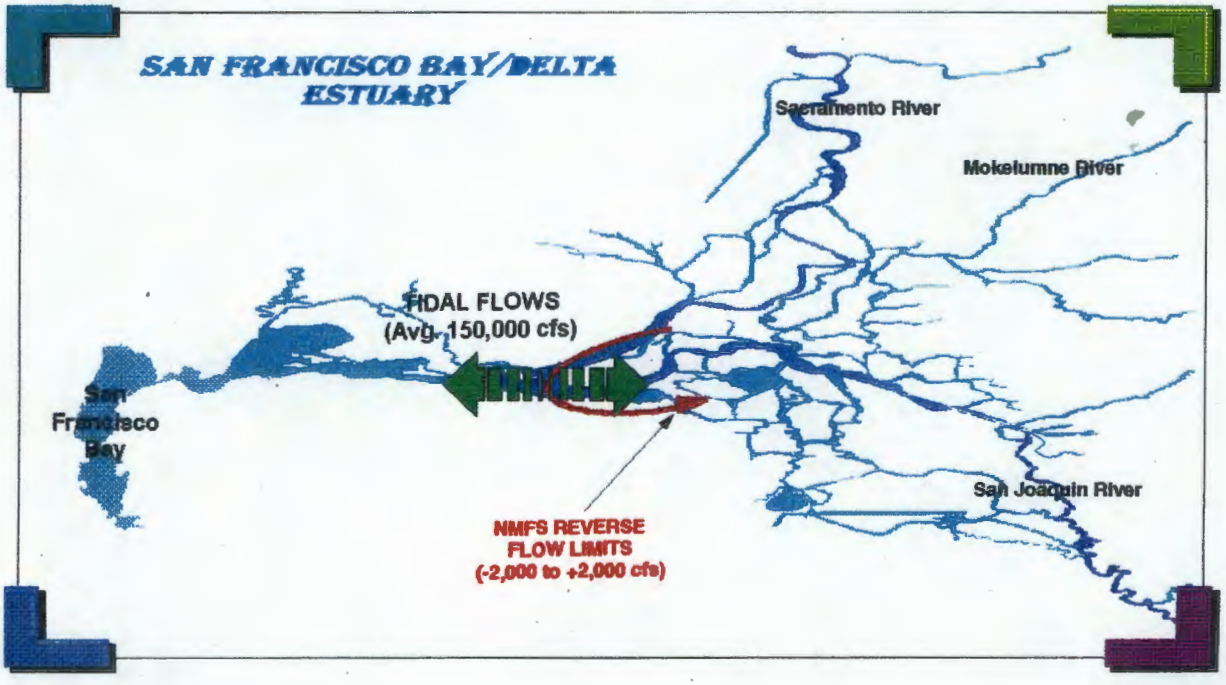
One of the more significant technical points of disagreement between the Joint Proposal and the Federal Proposal is the proper method of regulating/limiting exports from the major pumping facilities in the Southern Delta.

The Federal Proposal seeks to impose limits based on net reverse flows in the Western Delta, or a QWEST index, data. Reverse flows represent net alteration of flows around Sherman Island due to pumping activities. The Federal agencies believe a correlation exists between magnitude of net reverse flows and fish mortality; that the reverse flows cause migrating salmon to lose their ability to navigate upstream toward their spawning grounds or downstream toward the sea and that net reverse flows increase diversion of fish toward the export facilities.

The Joint Proposal's export limits are based on different assumptions. Daily tidal action is approximately 100 times greater than typical reverse flow rates; the effect of reverse flows on transporting fish and nutrients is negligible compared to tidal influences.

The Joint Proposal would slightly increase calculated net reverse flows near the San Joaquin River because it would require closure of the Delta Cross Channel during the spring months. The Cross Channel closure, which prevents salmon from diversion out of the main stem of the Sacramento River (where they should be) into the interior Delta, also increases the flows in the Sacramento River and decreases flows through the interior Delta, causing greater calculated net reverse flows around Sherman Island.

The Joint Water Users feel the biological benefit of closing the Delta Cross Channel justifies slight increases in net reverse flows around Sherman Island. Therefore, the Joint Water Users reject the QWEST criteria for limiting pumping in the southern Delta. Instead, the Joint Proposal includes export limits as a percentage of inflow into the Delta.



Status & Discussion of Current Technical Issues (con't)

II. San Joaquin River Spring-Time Outflows

The Joint Proposal sets minimum flow levels for the San Joaquin River, which are somewhat lower than the levels proposed by Club FED. The Joint Proposal also includes additional export limits and closure of the Old River Barrier in the spring period. Both of these measures provide additional protection for outmigrating salmon smolts during the Spring.

Club FED representatives believe San Joaquin River flows must increase above the levels recommended in the Joint Proposal in order to protect San Joaquin salmon populations.

The Joint Water Users believe the best available scientific evidence suggests that increasing San Joaquin River flows beyond the levels recommended in the Joint Proposal would not generate significant additional environmental benefits.

Instead, the Joint Proposal relies on a combination of flow and non-outflow-related measures to improve overall habitat conditions in the lower San Joaquin River. These measures should improve habitat conditions for salmon and other species, consistent with the policy goals of the Central Valley Project Improvement Act.

III. Cross-Channel Gate Closure Periods

The only significant disagreement identified was the operation of the cross-channel in June.

The Joint Water Users propose that the cross-channel remain open in June since during most years a relatively small number of salmon are outmigrating during this period (peak outmigration in mid-May). In addition, closure of the cross-channel has a negative impact of impeding recreational boating, reducing interior-Delta water quality, and reducing the ability of exporting surplus Spring-time snowmelt runoff.

Club FED proposes closure in June to protect the tail end of the fall-run chinook salmon outmigration. The opening of the gates in June would reduce the likelihood of survivability of smolts. The portion of June outmigrant smolts diverted through the cross-channel would face the risk of increased predation, high water temperatures, poor water quality, and entrainment by unscreened diversions.

IV. Striped Bass Spawning Standards

The issue of discussion is whether to include specific salinity standards for striped bass on the San Joaquin River.

The Joint Water Users question the value of salinity criteria aimed solely at striped bass for several reasons:

1. Species-by-species is inherently inefficient, requiring high water costs without comparable increases in biological benefits;
2. Increasing striped bass populations also increase predation pressure on the native salmon; and
3. Striped bass are an introduced species and do not merit the same attention as declining native species.

V. Prospects for Consensus

After several meetings with representatives of Club FED, the Joint Water Users have prepared a report that details the points of technical disagreement between the two proposals. Technical discussions with Club FED are continuing, and we hope to resolve these issues by the end of 1994.

CALFED -- State/Federal Partnership

I. The State/Federal Framework Agreement

In June 1994, Federal and State resource agencies executed a "framework agreement" for resolving long-standing Bay-Delta issues. The agreement represents a new cooperative relationship between the State and Federal governments, who had been at odds over Bay-Delta issues.

The agreement includes several key provisions:

1) EPA will adopt final Federal water quality standards in December 1994. The State Board, in cooperation with Federal agencies, will develop a Bay-Delta protection plan that meets both Federal and State requirements. After EPA approves the State's plan, EPA will withdraw the Federal standards.

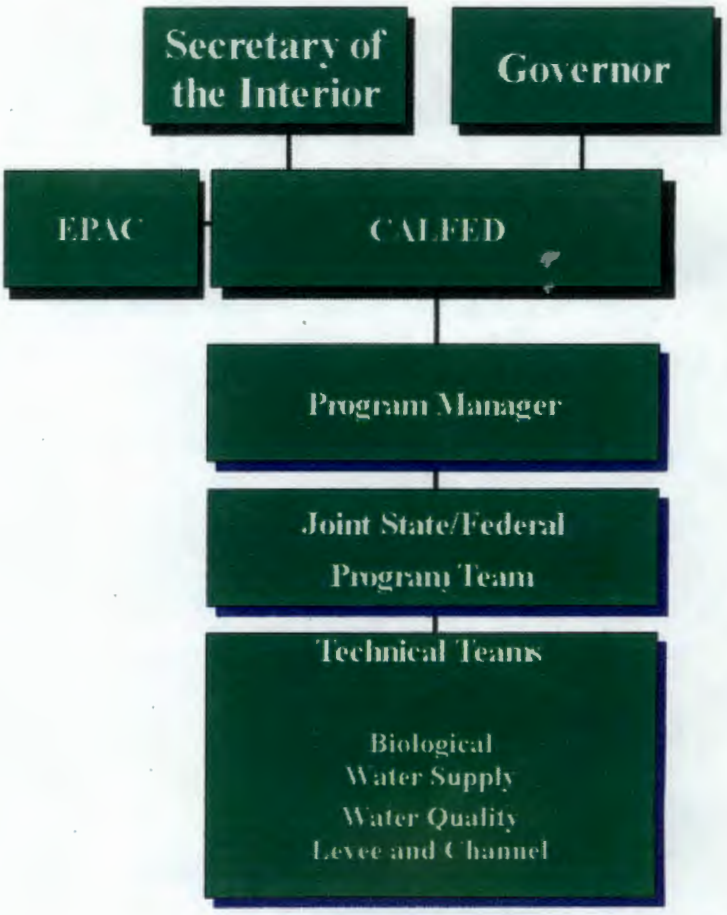
2) The Federal and State agencies will coordinate water project operations with the requirements of the Endangered Species Act and the Central Valley Project Improvement Act.

3) The State and Federal agencies agree to jointly manage a long-term process for resolving Bay-Delta environmental and water supply issues.

II. State/Federal Process for Long-Term Solutions in the Bay-Delta

Federal and State resources agencies recently announced the establishment of a process for identifying long-range solutions for the Bay-Delta. Recognizing that immediate standards are only the first step in restoring the Bay-Delta, these agencies acknowledge the need for a more comprehensive, multi-species ecosystem management program.

The organization of this process is still under discussion, but probably will resemble the following:



III. Organizational Units

1) The **Governor** and **U.S. Secretary of the Interior** will oversee the entire process and jointly appoint members of the Estuary Policy Advisory Council (EPAC).

2) **CALFED**, consisting of high-level officials of the Federal and State resource agencies party to the Framework Agreement, will provide policy direction and oversight to the process and ensure consistency between the program policy and statutory requirements. While the Governor and Secretary of the Interior have ultimate approval authority over this process, functional decision-making responsibility will rest with CALFED.

3) **EPAC** (the Estuary Policy Advisory Council) is a citizens' advisory group consisting of representatives from the urban, agricultural, and environmental communities. EPAC will recommend issues the CALFED/Partnership should address, suggest evaluation criteria for alternative Bay-Delta planning components, and recommend preferred alternatives.

4) The **Program Manager** will: (a) be responsible for development and implementation of the solution-finding process; (b) be responsible to CALFED and will work closely with EPAC; (c) direct the daily activities of the joint State/Federal Program Team; (d) serve as the primary point of contact under NEPA/CEQA for public input and overall program comments; and (e) be responsible for coordination with the Central Valley Project Improvement Act (CVPIA), Comprehensive Conservation Management Plan (CCMP), and other ongoing State and Federal programs. CALFED will select the Program Manager from a pool of qualified candidates.

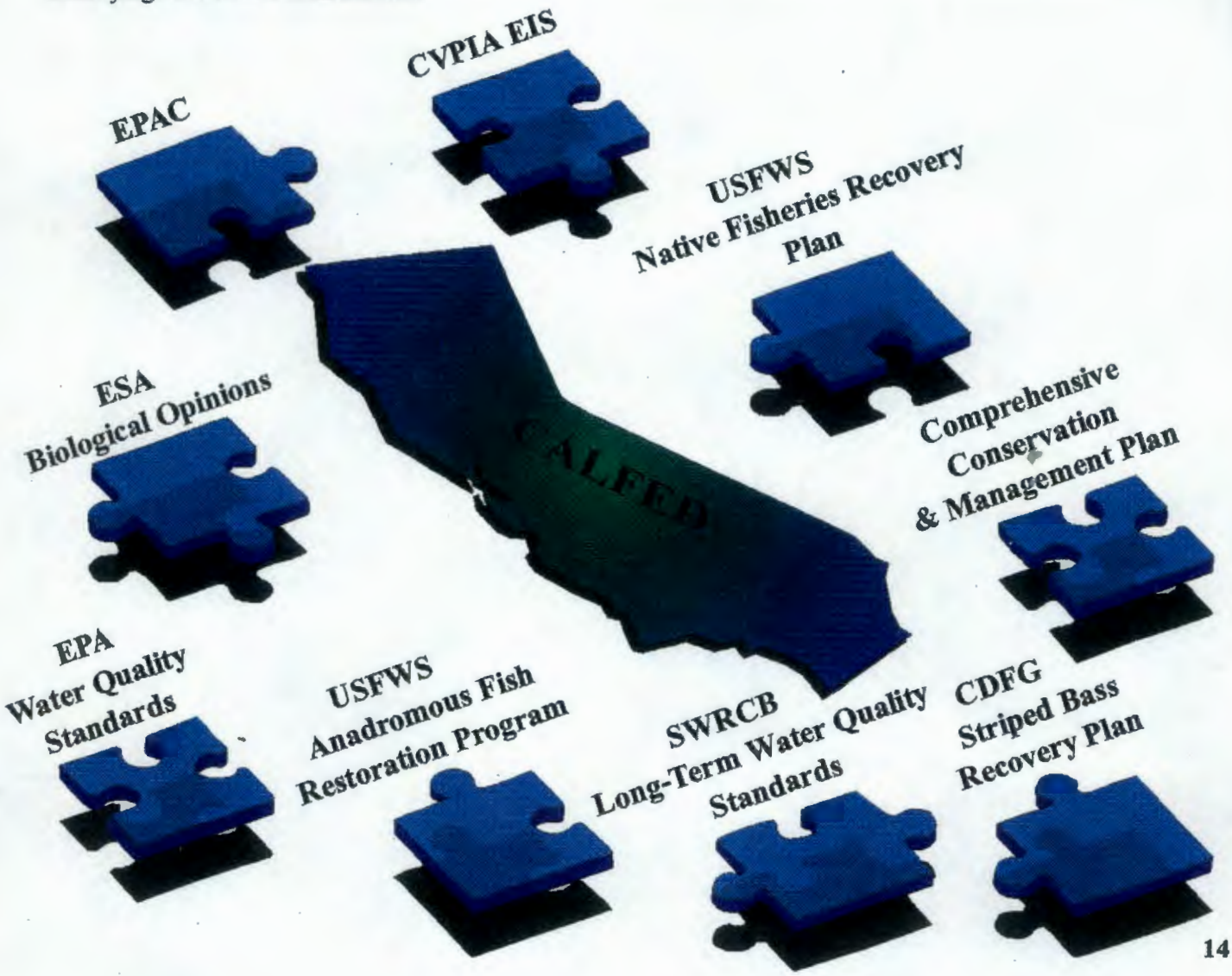
5) The **Joint State/Federal Program Team** will include staff from State and Federal agencies with expertise in subject areas such as water supply, biological resources, water quality, levees and channels, NEPA/CEQA, and administrative and budgetary issues.

6) **Technical teams** will work under the Joint Program Team and will provide technical assistance on specific projects or components of the long-range planning process. The technical teams would include staff from State and Federal agencies and might include outside experts and consultants as needed.

IV. Integration of Bay-Delta Regulatory Processes with Long-Range Planning Process

A primary motivation for the long-range planning process is integration of the myriad of State and Federal activities in the Bay-Delta. The Joint Water Users believe it is essential that this intent of CALFED is carried out as soon as practical. For instance, it would defeat the purpose of developing a multi-species ecosystem management plan if requirements under new or existing endangered species listings were not integrated into the CALFED process and thus altered the biological parameters and assumptions underlying CALFED's deliberations.

Therefore, it will be necessary for participating agencies to do more than merely coordinate their enforcement actions with the CALFED Process. The responsible agencies should enter into Memoranda of Agreements that will fully integrate their endangered species and other enforcement actions into a long-range plan for restoring the Bay-Delta. Actions requiring integration would include listings, consultations and formulation of biological opinions, jeopardy opinions, and recovery plans for listed species.



Comprehensive Ecosystem Management

I. The Impact of Endangered Species Actions in the Bay-Delta

Current implementation of the Federal Endangered Species Act (ESA) requires frequent and unpredictable shut-downs of Delta export facilities to prevent exceeding take limits for individual species, the listed winter-run chinook salmon and delta smelt. These shut-downs decrease the reliability of California's water supply infrastructure and jeopardize the water plans of agencies throughout the State and inherently interfere with efforts to develop more comprehensive habitat management approaches.

A lack of coordination by various Federal and State agencies regarding ESA actions compounds these problems. Measures to protect one species may counteract measures required by another agency for a different species. The net effect of this approach is using more water for less biological benefit. Effective biological planning will require integrating these processes that agencies currently undertake in isolation.

Moreover, ESA actions in the Bay-Delta too often have focused almost exclusively on water project operations, to the exclusion of non-water project factors that also contribute to the problem (e.g., Category III measures).

II. Multi-Species Planning and Ecosystem Management

Consensus has emerged from all sides of the water community that multi-species planning and ecosystem management must take place to avoid the problems created by the ad hoc, species-by-species approach of current endangered species regulations. Species-by- species management is inherently inefficient as it exacts higher water costs without comparable increases in habitat protection.

Comprehensive ecosystem management is a new and evolving area of science, and developing a multi-species plan for the Bay-Delta provides an opportunity to advance this innovative field.

Plans must focus on the ecosystem as a whole. Managers can modify a program "mid-stream" to accommodate the needs of species that appear not to respond positively.

III. "Shelf-Life": The Need for Regulatory Assurances

Secretary of the Interior Bruce Babbitt recently announced a new policy regarding the certainty associated with agreements to protect endangered species. The new policy provides assurances that agreements regarding endangered species protections will not later be subject to greater demands.

The U.S. Fish and Wildlife Service recently announced regulatory guidelines ensuring that this new policy applies to aquatic species as well as terrestrial species. The Bay-Delta Ecosystem Partnership provides an opportunity to apply this "shelf-life" policy to agreements regarding aquatic habitat and species.

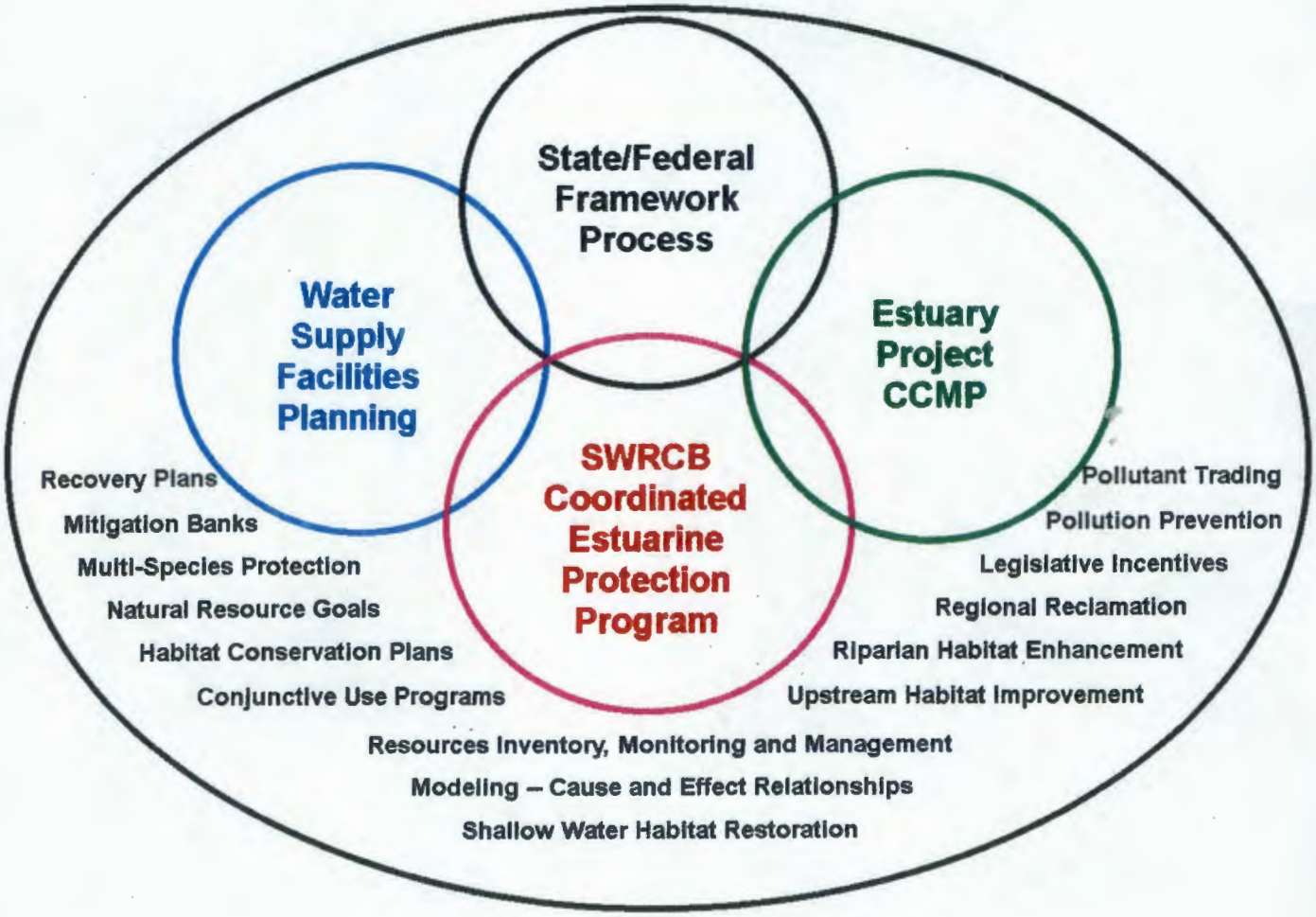
The Joint Water Users support the adoption of new Bay-Delta standards and commencement of a multi-species planning effort because of the promise these actions hold for increasing the reliability of water supplies from the Bay-Delta watershed.

This reliability will fail to materialize, however, if agreements reached with federal agencies have insufficient "shelf-life" to support reliance by water agencies for long-range supply planning.

Comprehensive Ecosystem Management (con't)

Comprehensive Ecosystem Management Plans will involve interlocking commitments among public and private entities with overlapping jurisdictions and interests in the Bay-Delta. The following diagram depicts some of the related actions and programs of a long-term program for the Bay-Delta. It will be necessary for the State Board to coordinate new standards with such a broad program.

Urban and agricultural agencies view the State/Federal Bay-Delta Ecosystem Partnership as the primary process for developing this comprehensive plan and ensuring consistency with applicable state and federal environmental laws, policies, and regulations.



ACTIONS

Flow & Operational Requirements

FLOW REQUIREMENTS	Spring					Summer		Fall		Winter		
	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
Sacramento River Flows												
Min. cfs flows at Rio Vista in C/D/BN/AN/Wet year types								3,000	3,000 - 4,000	3,500 - 4,500		
San Joaquin River Flows												
Min. cfs flows at Vernalis in C/D/BN/AN/Wet year types		1,000	2,000 - 5,000 or equivalent pulsed volume	1,000					1,000			
Pulse/attraction flow in all years, except no two critical years in a row; includes closure of Old River barrier									28,000 AF Pulse			
Delta Outflow												
Min. cfs flows in C/D/BN/AN/Wet year types				6,000	4,000	4,000 - 8,000	3,000 - 4,000	3,000	3,000 - 4,000	3,500 - 4,500	4,500 - 6,000	
Estuarine Habitat Standard (based on avg. daily salinity, 14-day avg. salinity, or equivalent flow)	X2 Sliding Scale w/ 3-Way Compliance at Roe, Chipps, & Confluence (In D/C yrs, Feb.=28-days of X2 @ Confluence)											
Pulse flow in Critical & Dry year types Min. 30-days if X2 at Confluence		30-days of X2 @ Conf		7,000 cfs pulse for 28-days								

EXPORTS & DIVERSIONS

Export/Inflow Ratio Limits

Min. pumping	Min. 1,500 cfs pumping in all year types				
Limit pumping to X% Delta inflow (X% if no significant adverse impact to fisheries);	65%	30% (35% if no signif. impact)	35%(55%)	55% (65%)	65%
Increased monitoring at pumps & in-Delta:	If the mortality estimate ≤ X% density of population, then OK to pump at higher % inflow; or If the mortality estimate > X% density of population, then maintain export/inflow ratios at lower % inflow;				

Direct Export Limits

Exports w/ Old River barrier no greater than Vernalis flow

Exports ≤ Vernalis flow

* These export limits are not intended to impede water transfers, which should be considered on a case-by-case basis.

ACTIONS

Flow & Operational Requirements

Spring	Summer	Fall	Winter

GATE & BARRIER OPERATIONS	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
Cross Channel												
Close radial gate in all year types	Cross-channel closed thru May 20											Closed
Old River												
Install barrier for San Joaquin River salmon smolt emigration, adult salmon migration, & pulsed flows.			Barrier for emigration					Barrier closed for adult migration & pulsed flows				
Georgiana Slough												
Install acoustic barrier in all year types.	Acoustic barrier installed									Acoustic barrier installed		

SALINITY

Delta Agriculture

		FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
SWP/CVP Intakes		Max. 1.0 EC (based on 14-day running average of mean daily in mmhos)											
So. Delta Agriculture Wtr. Quality Modeling Assumption		1.0 EC at Vernalis		0.7 EC at Vernalis;						1.0 EC at Vernalis;			
Emmaton (Sacramento River):	C	2.78 EC											
	D	0.45 EC				15	1.67 EC						
	BN	0.45 EC				20	1.14 EC						
	AN	0.45 EC					30	0.63 EC					
	W	0.45 EC											
Jersey Point (San Joaquin River):	C	2.20 EC											
	D	0.45 EC				15	1.35 EC						
	BN	0.45 EC				20	0.74 EC						
	AN	0.45 EC											
	W	0.45 EC											
Terminous (Mokelumne River):	C	0.54 EC											
	D	0.45 EC											
	BN	0.45 EC											
	AN	0.45 EC											
	W	0.45 EC											
San Andreas Landing (San Joaquin River):	C	0.87 EC											
	D	0.45 EC				20	0.58 EC						
	BN	0.45 EC											
	AN	0.45 EC											
	W	0.45 EC											

ACTIONS

	Flow & Operational Requirements											
	Spring					Summer		Fall		Winter		
SALINITY	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
Municipal & Industrial												
At CCWD or Antioch Wtr Works Intake on the S.J. River	Max. 150 mg/l chloride for 155/165/175/190/240 days/yr. during C/D/BN/AN/W; in intervals ≥ 2 weeks in duration.											
At CCWD, City of Vallejo, Clifton Court, Tracy Pumping Plant, & North Bay Aqueduct	Max. 250 mg/l maximum mean daily chloride											

STRIPED BASS SPAWNING

Prisoners Pt: Max. mean daily EC until spawning has ended; Relaxed when Antioch spawning criteria relaxed.			0.44 EC 0.55 EC									
Antioch (S.J. River): Max. 14-day avg. of mean daily salinity until spawning has ended				1.5 EC								

Deficiency	Critical Year Criteria	Dry Year Criteria
0.0 maf	1.5 EC	1.6 EC
0.5 maf	1.9 EC	1.8 EC
1.0 maf	2.5 EC	1.8 EC
1.5 maf	3.4 EC	1.8 EC
2.0 maf	3.7 EC	1.8 EC

Replaces above Antioch & Chipps criteria whenever the projects impose deficiencies

SUISUN MARSH PRESERVATION AGREEMENT

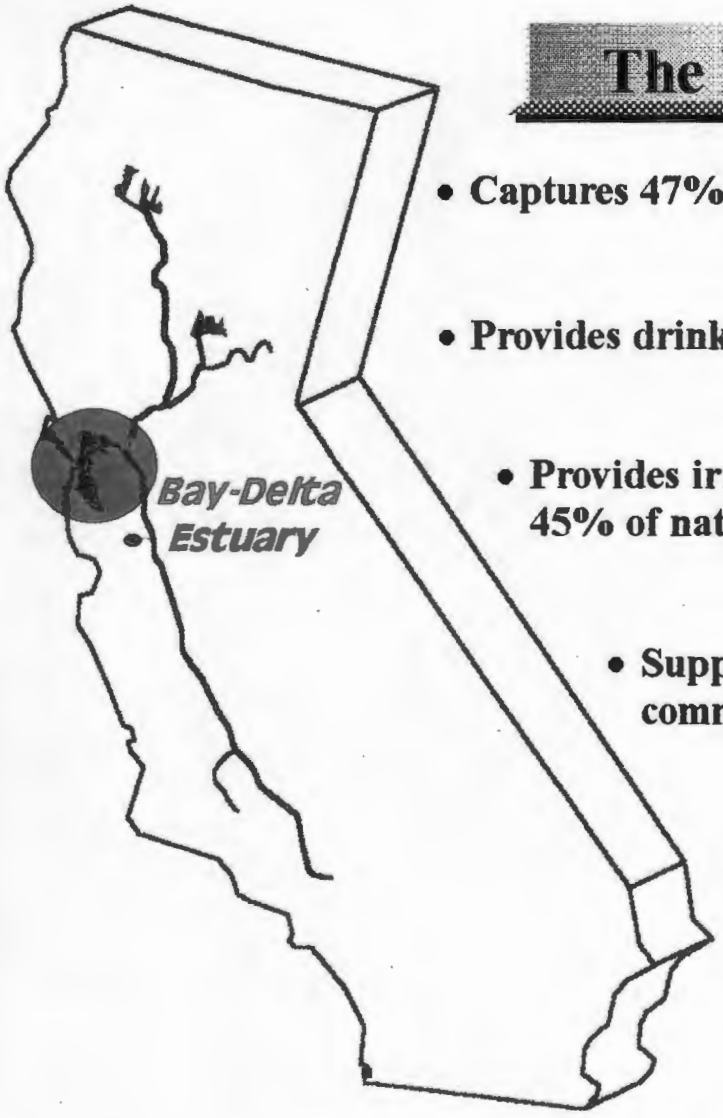
Suisun Marsh Preservation Agreement (Normal)	8.0 EC	8.0 EC	11.0 EC	11.0 EC				19.0 EC	16.5 EC	15.5 EC	12.5 EC
Suisun Marsh Preservation Agreement (Deficiency)	15.6 EC	15.6 EC	14.0 EC	12.5 EC				19.0 EC	16.5 EC	15.6 EC	15.6 EC

- The S.M.P.A. is based on the monthly average of both daily high tides in mmhos/cm EC at Collinsville, Montezuma Slough, Chadbourne Slough, Cordelia Slough, Suisun Slough, & Goodyear Slough (locations may differ).

The Bay-Delta -- A General Overview

The San Francisco Bay-Delta Estuary's environmental resources have been the focus of increased attention over the past few years as concerns about the declining health of the ecosystem have been highlighted by the recent six-year drought and various State and Federal regulatory actions.

From a water resources perspective, California's economy and its environment "meet" in the Bay-Delta Estuary. The Delta provides valuable habitat for a variety of sensitive fish and terrestrial species, and at the same time it serves as the hub of California's major water supply system that is essential to the operation of an $800 billion State economy, the sixth largest economy in the world.



The Bay-Delta

- **Captures 47% of State's runoff**
- **Provides drinking water to over 20 million people**
- **Provides irrigation water for 200 crops, including 45% of nation's fruits & vegetables**
- **Supports over 120 species of fish, and large commercial & recreational fisheries**
- **Contains the largest wetland habitat in western U.S.**

Data from EPA/USFWS/NMFS Briefing and Calif. Dept. of Finance

Bay-Delta Problems -- Environment & Water Supply Reliability

Environmental Problems:

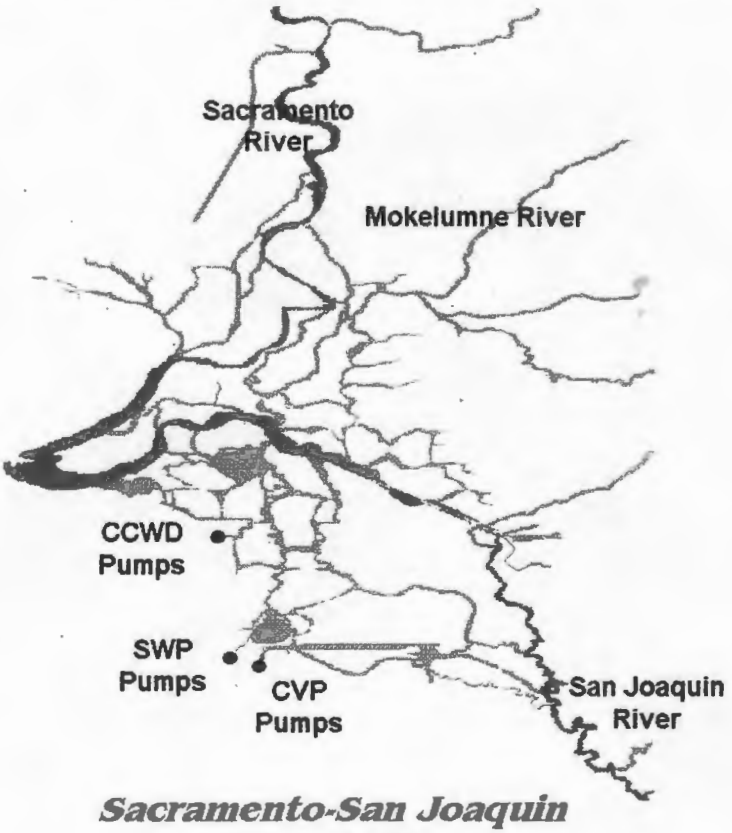
The operation of major water storage and diversion projects in the Bay-Delta watershed is an important factor in the decline of Bay-Delta environmental resources. These operations have changed the timing and amount of runoff to the Bay-Delta, altering habitat conditions in and around the Suisun Estuary. Low outflows in the spring months (February through June) caused by water project operations and diversions specifically affect habitat conditions in the Suisun Estuary.

In addition, other factors have also affected the biological resources of the Bay-Delta. Since the 1850's, the San Francisco Bay and Sacramento-San Joaquin Bay-Delta have been altered significantly by:

- Dredging and fill, resulting in habitat losses;
- Levee construction, also causing loss of habitat;
- Mining;
- Urban, industrial, and agricultural pollution;
- Loss of upstream spawning habitat from land development;
- Introduction of non-native species;
- Over-harvesting and poaching of fish and wildlife; and
- Others.

Constrained Water Project Operations and Water Transfer Opportunities:

Because the State and Federal water project diversion points are located in the middle of critical Bay-Delta fishery habitat, constraints on operations of these projects continue to increase resulting in greatly reduced water supply reliability. In addition to flow requirements, there are now severe export limits in every month of the year in order to protect federally listed winter-run salmon and Delta smelt. With year-round diversion limits, it will be extremely difficult for existing water users affected by the Bay-Delta regulatory requirements to mitigate water supply losses through water transfers.

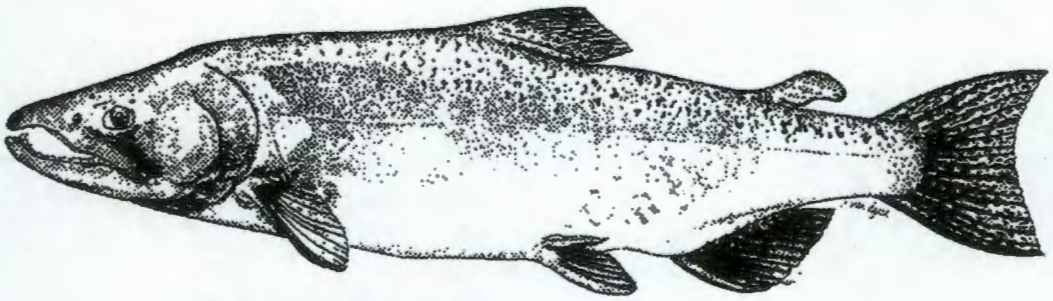


Sacramento-San Joaquin River Delta

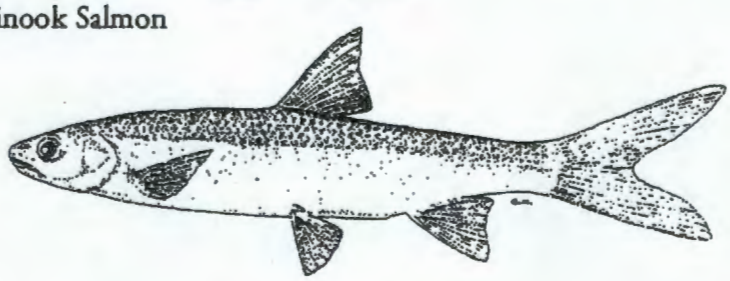
Recent and Proposed ESA Actions in the Bay-Delta

Winter-Run Salmon: Originally listed as "threatened" under the federal ESA, its status has been changed to "endangered". It is also listed as endangered under the State ESA. Requirements include cold-water releases from Lake Shasta and operational requirements in the Delta including very restrictive "take" limits. Its critical habitat area is provided a high level of protection.

Delta Smelt: Listed as "threatened" under the federal ESA and State ESA. Water project requirements in 1994 will likely include additional Delta outflows and an all-year "take" limit. Protection of its critical habitat area has been proposed and expansion of that area is being considered.



Winter-run Chinook Salmon



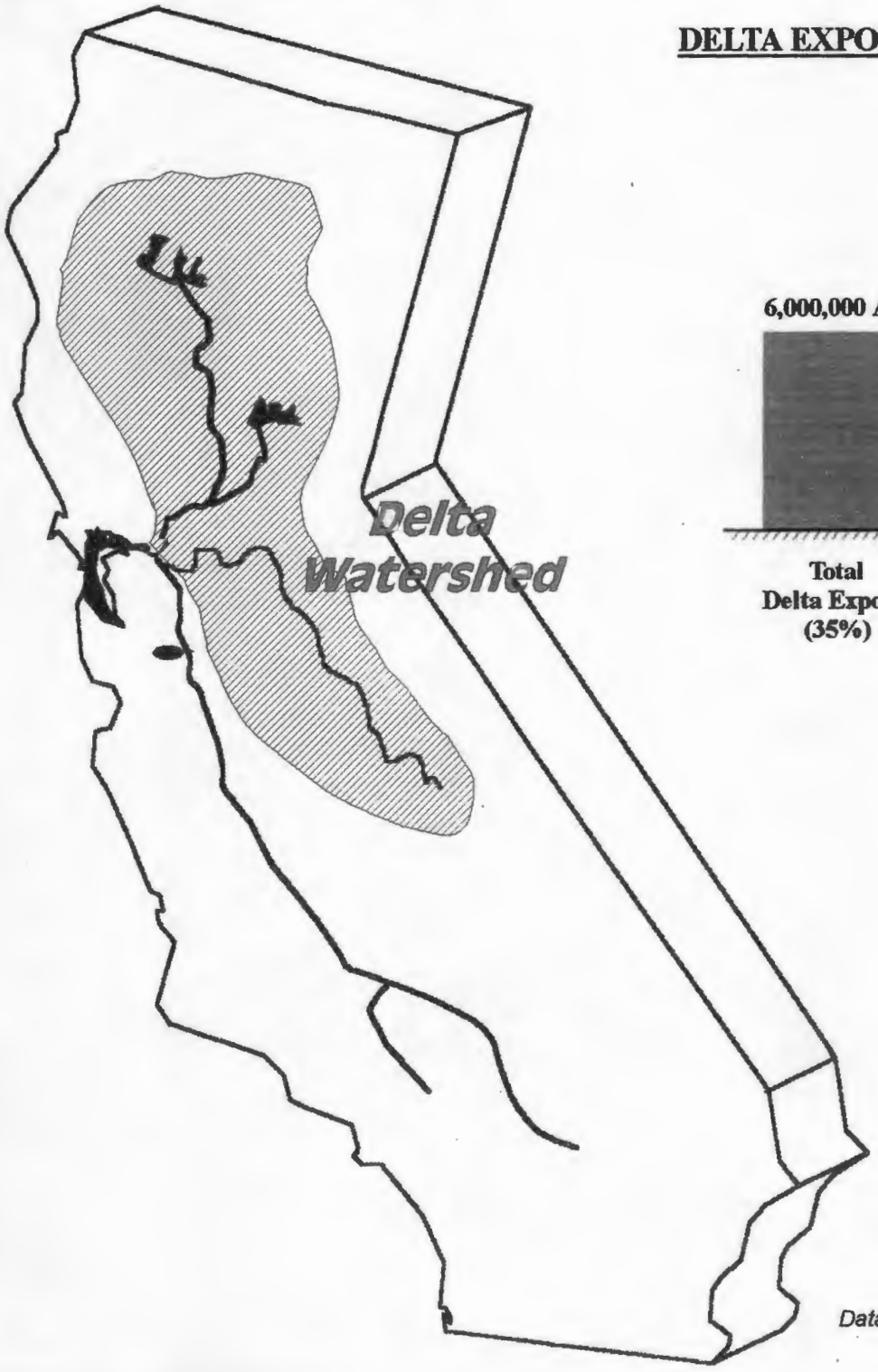
Sacramento Splittail

Delta Smelt

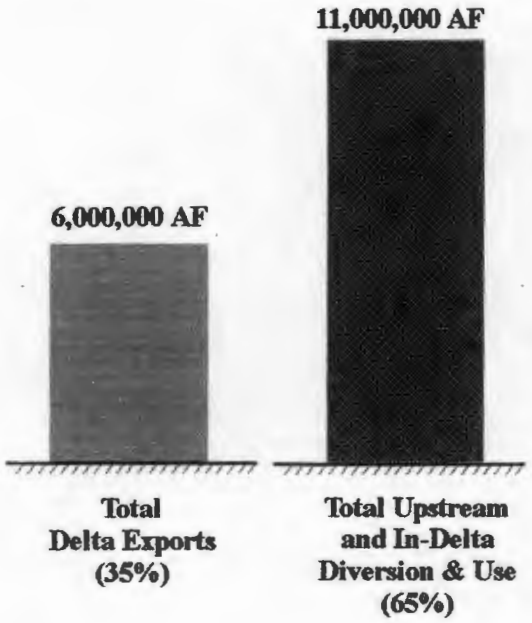
Sacramento Splittail: Proposed for listing under the federal ESA. Water project requirements are unknown at this time but will likely include an all-year "take" limit.

Future Additional Listings: Additional species could be listed in the future including San Joaquin fall-run salmon, Sacramento spring-run salmon, steelhead, and green sturgeon. Such listings would result in additional restrictions on water project operations.

California's Water Use & Export from the Bay-Delta Watershed



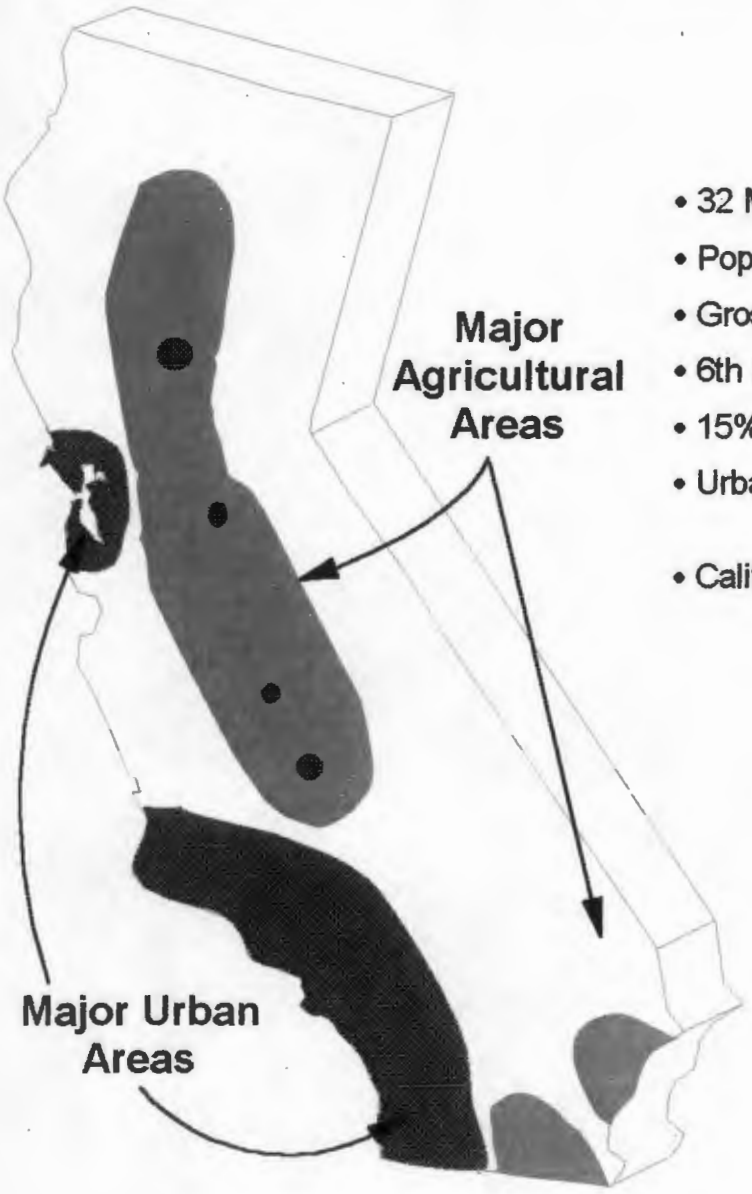
DELTA EXPORT vs. UPSTREAM USE



Data from DWR Bulletin 160-87

California Economy -- An Overview

Because of its sheer size, the health of the California economy is essential to the economic well-being of the entire Nation. California is not only the largest producer of jobs and goods and services in the nation, it is the center for Pacific Rim trade and the access point for the nation to many critical world markets. Federal natural resource policies that adversely affect the California economy will undermine the recovery of the national economy.



- 32 Million People
- Population Growth -- 500,000 / yr.
- Gross State Product -- $800 Billion
- 6th Largest World Economy
- 15% Share of Total U.S. Economy
- Urban & Agriculture Water Use -- 35 Million Acre-Feet
- California's Status in Overall U.S. Economy:
  - **1st -- Gross State Product**
  - **1st -- Personal Income**
  - **1st -- Manufacturing Output**
  - **1st -- Retail Trade**
  - **1st -- Agricultural Output**

Data from Calif. Dept. of Finance

June 30, 1994

The Honorable William Jefferson Clinton
The White House
Washington D.C. 20500

The Honorable Pete Wilson
State Capitol
Sacramento, CA 95814

Dear Mr. President and Governor Wilson :

As business leaders throughout California, we applaud the recently signed state-federal "framework agreement" and strongly support rapid approval and implementation of water quality standards for the Bay-Delta that protect both our environment and our economy.

Many of us worked hard to promote and secure the passage of water marketing legislation. We believe that an expanded water market -- supported by state and federal law and developed by private initiative -- would benefit all Californians. Instead, government inaction in the Bay-Delta has prevented the market for water from developing and blocked progress toward resolving many other crucial water issues.

Tackling the problems of the Bay-Delta will require state-federal cooperation on two key steps. First, standards must be established this year for the estuary. Second, we must commence longer-range comprehensive multi-species planning to protect Bay-Delta habitats and avoid the inevitable conflicts arising from a species-by-species regulatory approach.

The continuing gridlock in setting standards for the Bay-Delta is simply unacceptable. The lack of approved standards is creating uncertainty that threatens the economic recovery we so desperately need. Please commit to achieving standards for the Bay-Delta this year.

Sincerely,

Richard Rosenberg, Chairman & CEO
BankAmerica Corporation

Robert T. Parry, President & CEO
Federal Reserve Bank of San Francisco

Julius R. Krevans, Chairman
Bay Area Economic Forum
Chancellor Emeritus, UCSF

Richard A. Clarke, Chairman & CEO
Pacific Gas & Electric Company
Chairman, Bay Area Council

James R. Harvey, Chairman
TransAmerica Corporation

Robert E. Paulger
Procter & Gamble

Thomas W. Morgan, CEO
Semantic Solutions, Inc.

Loren Pannier, Chairman
~~Industrial~~ League of Orange County

John E. Bryson, Chairman & CEO
Southern California Edison

Thomas A. Page, Chairman & CEO
San Diego Gas & Electric Company

Paul Hazen, President
Wells Fargo Bank

Businesses Push for Federal-State Accord on Delta Water Use

By MARLA CONE
TIMES ENVIRONMENTAL WRITER

Forging an unusual alliance, top California business executives are urging President Clinton and Gov. Pete Wilson to agree on environmental standards for the San Francisco Bay-San Joaquin River Delta, saying prolonged uncertainty over the state's main water supply is threatening California's economy.

"The continuing gridlock in setting standards for the Bay-Delta is simply unacceptable," says a letter mailed Wednesday by chief executive officers from firms including BankAmerica Corp., Southern California Edison and Procter & Gamble. "The lack of approved standards is creating uncertainty that threatens the economic recovery we so desperately need. Please commit to achieving standards for the Bay-Delta this year."

The letter from the executives may put election-year pressure on the Republican governor to reach agreement with Clinton's environmental aides over how much water to restore to the

Please see BUSINESSES, A22

BUSINESSES: Water Plan

Continued from A3

Bay-Delta for endangered fish and other wildlife. The two administrations have been debating for months over standards for the sprawling estuary, which supplies two-thirds of the drinking water in California.

Although pushing for environmental controls is unusual for business interests, the executives stress that some resolution is crucial because so much water is at stake.

For 15 years, the state has been unable to decide on permanent allocations of delta water for cities, farms and wildlife. Last year, the Clinton Administration, facing a lawsuit from environmentalists, proposed salinity standards that would reduce available fresh water by an average of 9% per year.

The Wilson Administration opposes the federal proposal, saying the standards were set arbitrarily and could harm agricultural interests and cities. Because the state operates the biggest aqueduct that drains the delta, without the governor's support the standards would not be implemented.

California Secretary for Resources Douglas Wheeler said the state water board will develop its own proposal by Dec. 15—the deadline for the federal government's final standards—and he is optimistic that some disputed issues will be resolved soon.

"In this letter, they are reminding us—as we should be reminded—that this is a matter of utmost concern to the entire state of California. This is an environmental issue as well as an economic one," Wheeler said. "We are in total agreement with them about the need to provide a solution that provides reliability and predictability."

Last month, the two administrations partly broke their deadlock by forming a partnership to work together on Bay-Delta protection. The real challenge, however, remains in developing standards that appease both.

The business leaders said they worry that bond ratings of major utilities, which are now undergoing review, could be lowered because of the lack of water standards. They also said a "water market"—in which utilities and landowners buy and sell water rights—cannot thrive until standards are approved.

The business alliance is unusual in that it represents executives from both ends of the state, who historically have been at odds over the transfer of Northern California's water to the south.

Chief executive officers who signed the letter are Richard Rosenberg, BankAmerica Corp.; Julius R. Krevans, Bay Area Economic Forum; Richard A. Clarke, Pacific Gas & Electric Co.; James R. Harvey, TransAmerica Corp.; John E. Bryson, Southern California Edison Corp., Robert E. Paulger, Procter & Gamble; Thomas A. Page, San Diego Gas & Electric Co.; Thomas W. Morgan, Semantic Solutions; Paul Hazen, Wells Fargo Bank; Robert T. Parry, Federal Reserve Bank of San Francisco; and Loren Pannier, Industrial League of Orange County. A similar letter signed by Airtouch Communications CEO Sam Ginn was sent by the California Business Roundtable.

The goal of the standards is to return enough fresh water to the estuary to normalize its excessive salt concentrations so that populations of rare chinook salmon and other spawning fish can be revived.

CHARTERED BY: American Federation of Labor and Congress of Industrial Organizations

Los Angeles County **FEDERATION of LABOR, AFL-CIO**

2130 WEST NINTH STREET
P.O. BOX 20630
LOS ANGELES, CALIFORNIA 900C
Telephone: (213) 381-5611
FAX: (213) 383-0772

JIM WOOD
SECRETARY-TREASURER

August 4, 1994

President Bill Clinton
The White House
Washington, D. C. 20500

Dear President Clinton:

California's working men and women need a reliable source of water to sustain the jobs on which they and their families depend.

Water in California is a scarce commodity, and it sustains virtually all industrial and manufacturing activities. When drought occurs and the water needed in the urban economy is unavailable, many jobs are lost. A reliable water supply is an essential component for strong economic growth and job-creation in California.

We have become increasingly aware over the past years that regulatory gridlock in the Bay/Delta threatens the reliability of water for our industries and jobs. This regulatory gridlock that has prevented solving the economic and environmental problems associated with the Bay/Delta is simply unacceptable to us.

The Bay/Delta is the hub of California's water supply infrastructure, and the economic stakes of keeping it functioning efficiently are high. We support reasonable standards for the Bay/Delta now. Over the longer term, we support other actions that will sustain the reliability of water supplies, create jobs for Californians today and tomorrow, and protect water reliability in the future through infrastructure maintenance and development.

Thank you for your valuable attention to this matter.

Sincerely,

Jim Wood

Jim Wood
Secretary-Treasurer

JW:db/srm
opeiu#537
afl-cio,clc

PUBLICATION The Orange County Register

DATE August 12, 1994

Babbit offers binding conservation agreements

ENVIRONMENT: Feds say they will not try to renegotiate deals made with landowners.

By LISA RICHWINE
States News Service

WASHINGTON — Interior Secretary Bruce Babbitt offered developers a new deal Thursday — all endangered-species agreements are final.

Babbitt offered a promise that once developers adopt a habitat-conservation plan, as required under the Endangered Species Act, federal officials will be barred from demanding more money or land from developers.

Officials from the Irvine Co. and the Santa Margarita Co. hailed Babbitt's promise, which will be honored even if other species living on the property become endangered or threatened after the agreement is signed, Babbitt said.

"We're telling landowners that a deal is a deal," Babbitt said. "If you invest money and land into saving species, we won't come back 10 years from now and say you have to pay more or give more."

Developers said the policy change dispels the uncertainty that makes many private companies leery of entering into species-conservation plans.

"Lack of certainty has been a major obstacle to large-scale private conservation planning," said Monica Florian, senior vice president for the Irvine Co.

Under the Natural Communities Conservation Plan being negotiated among Orange County landowners, county planners and wildlife officials, some habitat for the threatened California gnatcatcher could be destroyed as long as coastal sage is preserved elsewhere.

The plan has been praised by Babbitt, who has embraced regional habitat-protection plans over protecting individual species. Orange County is likely to receive $750,000 in federal money to enact the plan once both chambers of Congress sign off on next year's spending bill for Interior programs.

Babbitt's announcement was one in a series he has made this year to address criticisms of the endangered-species law, which has come under attack from developers and private-property owners. The secretary said the act, which is facing a major congressional overhaul, has become unfairly stigmatized.

The secretary stressed that the department will still have the ability to respond to changing habitats, but will not hold the original parties liable for new protection strategies.

At Babbitt's side Thursday were six representatives of development companies, including Richard Broming of the Santa Margarita Co., who welcomed the policy.

"This policy helps to provide clarification and guidance as well as give landowners a presence," Broming said.

BRUCE BABBITT: 'We're telling landowners that a deal is a deal.'

'Shelf life' key to Delta pact

Species protection law threatens future water supplies' certainty

By Jim Mayer
Bee Staff Writer

Sacto BEE 9/12/94

DISCOVERY

Months of intense negotiations are yielding an agreement to protect the troubled Sacramento-San Joaquin River Delta.

But in a dilemma tainted with irony, the solution to one of California's most vexing environmental problems is running into a large obstacle. a tough national environmental law, the Endangered Species Act.

Farm and urban water officials say they accept that they will have to divert less fresh water from the Delta in order to protect fish and wildlife dependent on the maze of sloughs, islands and marshes.

But in exchange, they want environmental officials to promise that water supplies will not be reduced again any time soon in the name of a new endangered animal. They have come to call that certainty "shelf life."

Wildlife officials say they are looking for a way to get around the impasse. But Joel Medlin, field supervisor for the U.S. Fish and Wildlife Service, said they are reluctant to guarantee what they can't be sure of – that the new water quality standards will rejuvenate all declining aquatic species.

Wildlife officials say the law requires them to protect all species, and if the EPA's standards are inadequate, they may not have a choice but to enact additional restrictions.

For years, while southern cities and farms pumped increasingly more fresh water, biologists lamented the expansive estuary's decline and the inadequacy of environmental laws. Not until winter-run chinook salmon was declared threatened in 1989, and Delta smelt in 1993, were the federal and state systems of dams and canals forced to reduce pumping.

"Ignoring the needs of the Delta has brought us to this crisis, and thus the listing of species," said John

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madeo, executive director of the ay-Delta Oversight Council, arged with crafting a long-term lution to the problem.

"Now the Achilles' heel is the ndangered Species Act. You ed to achieve measures that ovide for the species, while proding shelf life for the standds."

The State Water Resources ntrol Board set out in 1987 to t tougher water quality standds for the Delta, but each effort as politically undermined by war utilities that wanted to take ore water.

The U.S. Environmental Protecon Agency in December prosed its own Delta standards, nich would let more fresh water ow through the Delta to San ancisco Bay and make less ailable for diversion.

The strategy is to push young sh away from the giant pumps d to re-create the brackish contions near Suisun Marsh that ologists say are needed for a althy food chain.

The EPA is scheduled to approve a revised version of that plan this December.

The revisions are intended to reduce the water costs by one-third without reducing the environmental protections. Under the latest plan and in the driest of years, the new rules would require 1.1 million acre-feet – about one-fifth the water pumped south by the Central Valley Project and State Water Project.

This month, the California Urban Water Agencies endorsed major portions of the EPA plan.

Earlier this summer, the Bay Area Economic Forum urged Gov. Pete Wilson to support water quality standards that would end the dispute, restore water supply predictability and allow water sales that could help meet growing urban needs.

The signers included the chief executive officers from BankAmerica Corp., Wells Fargo Bank, the Federal Reserve Bank, Pacific Gas and Electric Co., TransAmerica Corp., and Southern California Edison Corp.

"We are getting closer," said EPA Bay-Delta chief Patrick Wright. "It has been such a difficult and contentious issue for so long, I hate to be too confident. But the elements of an agreement are there."

Wright said the largest remaining issue is the water suppliers' fear that the EPA plan won't be the environment's last need.

David Schuster, a consultant for San Joaquin Valley irrigation districts, said most farm water officials realize they will lose water and there is no profit in stalling a resolution.

"It is not in our interest to stay in the position we are in," Schuster said. "Our guys want stability for the short term. So we can plan and we can maybe survive, depending on how much it rains."

Federal and state agencies have been pushing a strategy – known as habitat conservation planning – wherein land is set aside for protecting species in exchange for permission to develop otherwise protected habitat.

But biologists are unconvinced that such a plan can be worked out for aquatic habitats – especially in California, where the only constant is change. Seasonal and annual fluctuations in river flows, and the biological responses in thousands of species, are too complex to anticipate every condition.

Jay Ziegler, an aide to Interior Secretary Bruce Babbitt, said water suppliers will get what they pay for: The better the protections they agree to, the less chance more water will be needed to rescue another endangered species.

"It's like an insurance policy," Ziegler said. "The policy can only cover what we know about now. And the more comprehensive the coverage, the lower the risk."

Even environmentalists are trying to figure out how to give their longtime opponents the certainty they seek.

John Krautkraemer, an attorney with the Environmental Defense Fund, said one such plan would be to use money from an environmental restoration fund to buy any additional water needed for the Delta.

But he also is confident the years of research that have gone into the EPA proposals will produce the intended results – more salmon, bass and smelt.

"If you put this in place, the ESA problems are going to get less serious over time," Krautkraemer said. "I really am convinced of that."